

California **GARDEN**



MAY-JUNE 1986

One Dollar

Volume 77 Issue No. 3

ISSN 0008-1116

HORTICULTURE CALENDAR

May 1, 8, 15, 22, 29

Thursday Workshop with Colleen Winchell. Free Floral craft instruction - open to the public. San Diego Floral Association Library, Casa del Prado, Room 105, Balboa Park, San Diego, CA Thurs. 10-3 p.m. 479-6433.

MAY 3

Atwater Garden and Camellia Society's 9th Annual Rose Show, Atwater CA.

***MAY 3**

Floral Bus Tour to Olvera Street, Los Angeles, CA \$19.75. See typical Mexican market place, Casa Adobe, Old Plaza Church, Union Station Train Depot. Pickup points: Balboa Park, La Jolla Village Square, and Hadleys. Reservations: Jerry Ray 232-2661.

***MAY 3**

Growing and Marketing New and Unusual Fruits Course: discussing opportunities for small farm production. Contact Ann Richwine, University of California Extension, Riverside, CA 92521-8112, (714) 787-4102.

MAY 3 & 4

Balboa Park African Violet Society's 11th Annual Judged Show "Everything's Coming Up Violets". Casa del Prado, Room 101, Balboa Park, San Diego, CA Sat. 1-5 p.m., Sun. 10-4 p.m. Free. Violets, arrangements, terrariums and educational exhibits. Info: (619) 697-2884 or (619) 298-7870.

MAY 3 & 4

Southwest Branch, International Geranium Society Annual Show and Sale. Plummer Park, 7377 Santa Monica Blvd., Los Angeles, CA.

MAY 3 & 4

Wild Animal Park Epiphyllum Show. Annual show at the San Diego Wild Animal Park given by the San Diego Epiphyllum Society. Members will give tours through the park's Epiphyllum House, the home of over 500 mature blooming plants.

MAY 4

Central Coast Branch, International Geranium Society's Plant Sale and Show. Arroyo Grande, CA 12-4 p.m. Information: (805) 489-0548.

MAY 4

Photo Walk accompanied by Ranger/Naturalist Torrey Lystra at Wilderness Gardens Preserves, 14209 Highway 76, Pala, CA. 45 miles north of San Diego on Interstate 15, then 10 miles east on State Highway 76 to park entrance. Free. Parking fee \$1.00.

MAY 4

Quail Gardens Foundation Fun and Funds Festival. Ecke Building, Quail Gardens, Encinitas, CA. 10-4 p.m. Plants, cut flowers, jams and cakes for sale. See the new Visitor Center and Phase 2 of the waterfalls. Free admission and parking. Info: Nancy Gregory 436-3036.

MAY 10 & 11

Balboa Park Bromeliad Study Group's Plant Sale. In patio Casa del Prado, Balboa Park, San Diego. 10-4:30 p.m. Colorful variety available. Experts will answer questions. Info: (619) 473-8628.

MAY 10 & 11

National Fuchsia Society's Fuschia Show and Shade Plant Sale. Los Angeles County Arboretum, 301 N. Baldwin, Arcadia, CA. 10-5 p.m.

May 10-18

Wildflower and Fine Arts Show, Julian, CA. Wildflowers in bloom from desert to mountains. Local arts and crafts for sale. P.O. Box 393, Julian, CA 92036. (619) 767-1842.

MAY 11

San Diego Epiphyllum Society's Annual Mother's Day Show and Sale "Melodies in Epies". Casa del Prado, Room 101, Balboa Park, San Diego, CA. Show 10:30-4 p.m. Sale 10 until sold out. Over 3,000 named blooms with educational displays. Free.

MAY 14

Epiphyllum Mini-Show at the May meeting of the San Diego Epiphyllum Society, 7:30 p.m., Room 101. Casa del Prado, Balboa Park, San Diego. Informal showing of hundreds of blooms. Free. Visitors welcome.

May 15-18

King Korn Karnival, Coachella, CA. A celebration of the sweet corn harvest in Coachella Valley. P.O. Box 126, Coachella, CA 92236. (619) 398-5111.

May 17

Luther Burbank Rose Festival and Parade, Santa Rosa, CA. A colorful event featuring 100-200 entrants. BBQ follows. P.O. Box 1031, Santa Rosa, CA 95402. (707) 546-7673.

MAY 17 & 18

San Diego Geranium Society's 14th Annual Show and Plant Sale. Casa del Prado, Room 101, Balboa Park, San Diego, CA. Sat. 12-5 p.m., Sun. 10-5 p.m. Free.

MAY 24 & 25

San Diego Botanical Garden Foundation Plant Sale. Casa del Prado Patio, Balboa Park, San Diego, Sat. and Sun. 10-5 p.m., Sun. 10-4.

MAY 24 & 25

San Dieguito Garden Club's 10th Annual Flower Show and Plant Sale. Ecke Bldg., Quail Gardens, Encinitas, CA. Sat. 1-5 p.m., Sun. 10-4 p.m. Info: (619) 753-1044 or (619) 436-9462.

Turn Your Favorites into Healthy Houseplants Seminar by the Plant Doctor, Tineke Wilders, of Pathways to Learning, at 4118 Adams Avenue, Suite 3, San Diego, CA 9:30-12:30 p.m. Info and reservations 282-4228.

continued page 95



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Neyenesch Printers, Inc.
2750 Kettner Blvd.
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Manuscripts are invited. Deadline is 90-days prior to publication date. All manuscripts and illustrations submitted will be handled carefully but we cannot assume responsibility for their safety. All submissions must be double spaced and accompanied by return postage, if you expect them to be returned to you. Hortus Third is the authority for all botanical names used in this magazine. All opinions expressed are those of the authors and do not necessarily reflect the views of the editors of the San Diego Floral Association.

Address all editorial material to:

* CALIFORNIA GARDEN
Casa del Prado, Balboa Park
San Diego, CA 92101-1619

Postmaster, Send Form 3579 to:
California Garden, Casa Del Prado
San Diego, CA 92101-1619

California GARDEN

SINCE 1909

LIBRARY OF CONGRESS NO. ISSN 0008-1116

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COVER PHOTOGRAPHS BY KEN KELLEY ZOOLOGICAL SOCIETY OF SAN DIEGO 1986

A SPECIAL NOTE OF APPRECIATION TO DOVER BOOKS — "Treasury of Flower Designs" — 100 Garden Favorites by Susan Gaber. Illustrations used are found on the following pages: 69, 71, 76, 87, 89, 91.

For ten dollars a year, a **garden club** may become an affiliate member of San Diego Floral Association. This entitles the club to a year's subscription to California Garden, to be listed as an affiliate member in each issue of the magazine, showing name of president, phone number, address, place of meeting and time of meeting. It also provides one free ad per year, space permitting, in the magazine. Affiliate members are responsible to keep us informed of any changes in their listing.

For only \$25.00 a year, a **professional business** relating to horticulture can become a member of San Diego Floral Association and be listed in each issue of California Garden magazine as a "Professional Affiliate". This listing would include name, address and telephone number of the business. It is a wonderful opportunity to reach gardeners.

The deadline for articles and events for the July/August 1986 issue is May 20, 1986.

We can no longer provide a replacement copy free of charge if you fail to notify us of a new address at least 60 days in advance.

To remind you that your subscription is due to expire soon, a stamp "SUBSCRIPTION EXPIRES NEXT ISSUE" will be stamped on or near your address label on the issue prior to expiration date. On the following issue, a stamp "SUBSCRIPTION EXPIRED THIS ISSUE" means you are automatically dropped from the mailing list unless a renewal is initiated within that month. Make your renewals early to avoid missing an issue.

* CALIFORNIA GARDEN (ISSN) 0008-1116 (USPS 084-020), a non-profit publication, is published bi-monthly for \$5.00 per year, or \$9.00 for two years, by San Diego Floral Association, Inc., Casa del Prado, Balboa Park, San Diego, CA 92101-1619, USA. Single copy is \$1.00. For foreign countries add \$1.00 for extra postage. Entered as second-class matter, December 8, 1910 at the Post Office in San Diego, California, under the Act of March 3, 1879. Second class postage paid at San Diego.

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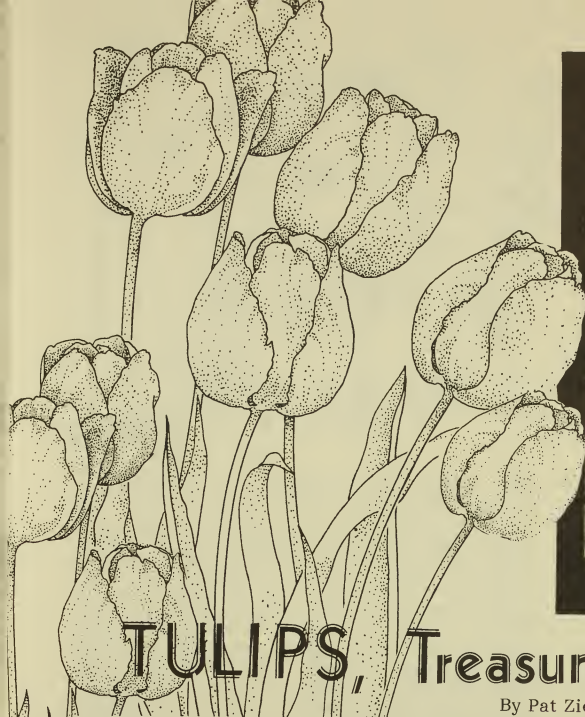
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TULIPS, Treasures, and Traditions

By Pat Ziebarth

It's tulip time in the spring time and the trip is worth it to see the fields of color in the upper midwest. California gardeners who enjoy fields of gladiolus, poinsettias and strawberries can thrill to fields of tulips without even leaving their United States.

The tulip originally was brought to the Netherlands during the 17th century from Persia. The fame of their blooms became worldwide because of the Dutch traders and merchants. The excitement of rare bulbs could mean a trade equivalent to the price of a whole house.

As settlers came to the 'New World', they brought with them the 'touch of home' — their tulip bulbs. One of the oldest 'Tulip Times' began in 1929 in Holland, Michigan, a community founded in 1847 by Dutch settlers. It has grown to be the third largest festival in the United States, taking place in May.

50 varieties of tulips line approximately eight miles of Holland's streets. The Veldheer Tulip Gardens, Inc. has the largest selection of commercially grown tulips in the world with more than 2½ million blooms.

The Holland Garden Club offers their 40th Annual Tulip Time Celebration. Flower arrangements, specimens, table settings, garden areas and educational exhibits are included.

Californians visiting this year will be entertained by Stars of Lawrence Welk and many typical 'Dutch treats' including famous Windmill Island.

Although the tulip is not king in California gardens, the same community spirit shared by all gardeners prevails. Those who love growing flowers have a special place in their hearts for other enthusiasts. Nowhere is there more enthusiasm for the tulip than in Orange City, Iowa. 1986 is their 46th Annual Tulip Festival (began in 1936 but had a break during World War II.)

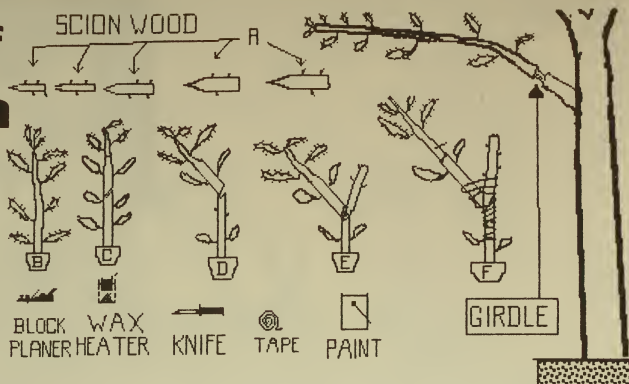
"Breng ons een Bezoek" (pay us a visit), say the energetic Hollanders each middle of May. Vander Well Test Gardens is a blaze of color featuring 6,000 tulips. The Orange City Federated Women's Club sponsors the flower show highlighting both contemporary and historical table settings featuring the tulip.

The festival honors the traditions of the town's Dutch ancestors who came to this farming community in the early 1800's. At the 'Straat Feest' (street festival) enjoy the 'Kindersplenen' (children playing) and 'Volksdansen' (folk dancing). The street scrubbers take their work seriously in preparing for the 'Volkparade'. Townspeople are attired in traditional costume and the 'Klompers Dancers' reflect their heritage as they dance in their wooden shoes.

Watch your authentic wooden shoes manufactured at De Klompen Maker's factory. Consider how they will look next year on the patio railing brightly filled with pots of tulips for a 'Dutch Touch' for your California garden. Time to start your very own tulip, treasure and tradition!

Grafting of Macadamia Nut Trees

By Ruby Law



Since macadamia trees will grow from seeds like many other plants, it is not certain that a seedling will produce quality fruit. However, in some rare cases, seedlings do produce exceptional quality fruit. By using these parent trees for scion wood, new and better qualities may be developed. The preparation of scion wood is of utmost importance.

Girdling is the key for successful grafting. About six to eight weeks before you plan to graft, take a pair of slip joint pliers and ring off the bark through the cambium layer to the heart wood, approximately one-half inch wide from a limb of a parent tree of known variety of good quality. The girdling process improves the take by building up starch reserves in the scion wood. These reserves are very important as they enhance the energy required during early growth. The level of the reserves in the wood can be checked by dipping the cut end in a saturated solution of potassium iodide (available at drug stores), which turns the cambium layer deep purple in the presence of good levels of starch.

Tools you will need to do the grafting are: very sharp knife, block planer, clear wrapping tape, water base white paint. 2/3 paraffin and 1/3 beeswax mix, (to dip scion wood in if you want to preserve wood for a few days).

I like the side wedge graft depicted in the drawings shown. Starting with the scion wood removed from the tree at the girdle point, cut into three-to-four-inch lengths, three to four

buds in each piece. Select the right diameter to match the rooted seedling stock. Make incision 3/4 through stalk in a downward direction approximately one-inch long. Cut the bottom end of scion wood piece to shape of a wedge one-inch long to match the incision when the limb is bent back, using a block plane to insure flat cut. Insert scion wood into incision making certain the cambium layers are lined up on at least one edge. To bind, wrap the grafted area with clear tape, starting well below incision, and wrapping upward to insure a tight bond between the scion wood and the rooted stock to approximately one-inch above union, tying off securely with half hitch knots. Paint the entire grafted area including the scion wood with the paraffin and beeswax melted mix, then paint the same with a water base white paint. The painting provides the necessary shade to reflect sunlight during summer.

Remove binding tape ten to twelve months after grafting to prevent choking of the graft, and at the same time, cut off the growth below the graft, and the bent over limb beyond the graft, as these are not cloned. This procedure has proven successful for me.

Ruby Law, from Rancho Cucamonga, California, is an avid gardener, specializing in growing rare fruits. She is seated as Chairlady of the California Rare Fruit Growers Foothill Area meetings held in the Los Angeles County Arboretum in Arcadia.




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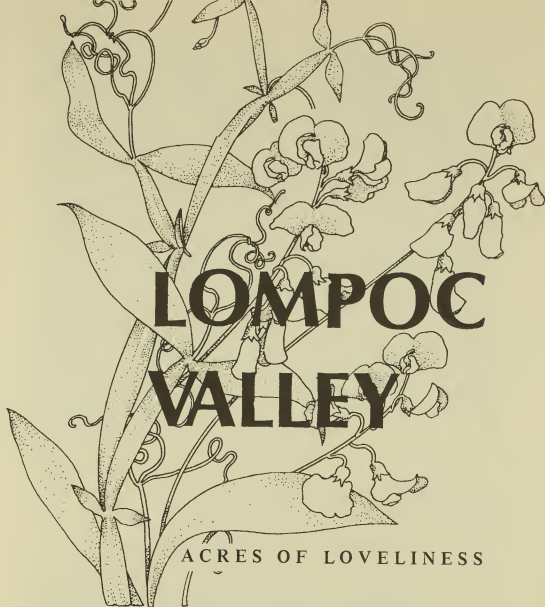
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HOW IT ALL BEGAN

Just after the turn of the century, a Scotsman by the name of John Smith, familiar with sweet pea production in England, happened to come to Lompoc. He suggested to a bean farmer, Robert D. Rennie, that he try growing some sweet peas. Rennie planted half an acre of them and two years later a bean seed buyer for the Burpee Seed Company in Philadelphia called upon him. Impressed by the success of Rennie's sweet pea experiment, he wrote directly to W. Altee Burpee, who was interested in the production of sweet pea seed.

Burpee proceeded to California with his seed. He discovered that the ocean breezes that sweep through Lompoc Valley, the deep wells and good soil, were all important to the flower seed industry.

Burpee planted his seed on the Rennie Ranch (located near Central and H) and soon hundreds of acres of sweet peas were under cultivation. Thus the Burpee Seed Company began its operation in the Lompoc Valley, and with the success of the first sweet pea growing venture, the famous Burpee Floradale Farm was established in the Valley.

Not until the advent of World War I did the young industry receive the necessary impetus to expand into a wide range of flower seeds. With World War II, the established European sources of supply were cut off from the United States.

In 1910 Mr. Anton Zvolanek came to Lompoc. He was the originator of the Early Flower Sweet Pea. His son, William, joined him in 1919 and

developed the world-famous multiflora sweet pea. His work was recognized by the British National Sweet Pea Society in the Henry Eckford Medal Award. He retired in 1975, selling his business to Denholm Seeds.

In 1920, the Bodgers came to Lompoc Valley. The firm has expanded from a one-man concern to an institution which supplies flower seeds to all of the countries of the civilized world.

The Denholm Seed Company started in 1939 when the Lompoc seedsmen, Harry Buckman (formerly of Burpee's), David Denholm, (formerly of Bodger's) and Ted Holden (also from Bodger's) joined forces to produce flower and vegetable seeds.

After Mr. Buckman passed away, Denholm bought Holden's interest and formed his own company in 1944, developing and introducing many fine new varieties for the seed trade and gardening public.

In 1973, Denholm sold the business to Peto Seed Co., Inc. Saticoy, California, which firm continues to operate the business under the name of Denholm Seeds.

Today the flower seed industry is still improving with the employment of modern research techniques. The flower seeds have been 'shot' with everything from colchicine to atomic energy, in quest of a flower that will be more pleasing to the world's flower lovers. Since 1953 the Burpee Seed Company offered \$10,000 to anyone who came up with a pure white marigold two and a half inches in diameter and in 1976 a lady in Iowa won the prize.

Lompoc is one of the few areas with the right formula of climate and soil for the growing of flowers commercially for seed. The result is that more than 2,000 acres of the Valley floor are carpeted with flowers — sweet peas, nasturtiums, marigolds, petunias, zinnias, larkspur, delphinium, poppies, stock and other varieties totaling more than five hundred.

Some kinds of flowers can be grown almost everywhere. But the areas that can produce a wide variety of seed with a high germination rate are few. It requires a mild but robust climate — the right amount of rain, not too cold and not too hot — and a diversity of soils. Because Lompoc has been favored with the right formula, it offers a floral display unequalled by anything of the kind in the world.

With the air filled with the delicate aroma of Sweet Alyssum and the magnificent colors of Sweet Peas, the 1986 Lompoc Flower Festival will get underway on June 25th. A potential variety of flowers totaling more than five hundred will be in their varying stages of growth to greet the visitor to the Flower Seed Capitol of the World. A five day celebration, known as the 34th Annual Lompoc Valley Flower Festival, honors the Flower Seed Industry. The San Diego Floral Association is sponsoring a bus tour from June 27-29 to include the arts and crafts show, alpha flower show, flower field tour and La Purisima Mission.



Sunflower

Article courtesy of National Garden Bureau

HISTORY

It is believed that wild sunflowers covered thousands of square miles of land that is now the western United States.

Sunflower remains have been found in North American archaeological sites, reports the National Garden Bureau, as early as 3,000 B.C. The center of origin for wild sunflowers is considered to be the Western Plains of North America but the ancestors of the cultivated type have been traced to the Southwest or the Missouri-Mississippi River valley areas. The first breeders of sunflowers appear to be the Ozark Bluff dwellers who selected plants and seed for cultivation.

For most American Indians, the primary use of the sunflower was as food. They were lightly roasted, then ground into flour and used in breads or with other vegetables. The ingenuity of the American Indians found other uses for the seed, as well as other parts of the plant. Some medicinal uses include: The Zunis used it as a cure for rattlesnake bites. The Dakotas, and other tribes, made an infusion from the sunflower head to relieve chest pain. The Cochite extracted the juice from the stem for cuts and wounds believing it helped in a quick recovery without infection. The extracted oil was also used to anoint the hair and as a base for paint pigments. A yellow dye was extracted from the ray flowers, and a purple dye was made from soaked purple seeds which were used to make color baskets and to decorate the skin.

Spanish explorers, while looking for gold and treasures, collected many of the new world's flora, introducing the sunflower to Europe for its ornamental qualities. It was grown as a curiosity; the herbalists of the time found no virtues in sunflowers. The first published record of the sunflower was in 1568 by the famous Belgian herbalist Rembert Dodoens. By 1616, the sunflower was common in England's gardens.

In 1699 John Evelyn wrote of making macaroons out of a flour made from ground seeds -- but he found the flavor to be similar to turpentine. However, Charles Bryant, in 1783, wrote that "the seeds have as agreeable flavor as almonds and are excellent food for domestic poultry." He also noted the high content of oil stored in the seeds and how easy it was to extract.

The sunflower spread quickly throughout most of Europe but it was grown more for its ornamental value than anything else.

It is in Russia that the European success story really starts. The Holy Orthodox Church of Russia forbade the use of many foods during Lent and Advent, including many which were rich in oil. The Russians eagerly accepted the sunflower recognizing it as a source of oil that could be eaten without breaking the laws of the church. Russia soon became the foremost producer of sunflower seed, a title they still hold. In the last 50 years the Russians bred sunflowers for high oil and improved resistance. In 1966, an open pollinated Russian-bred cultivar was introduced into the United States. This and other cultivars began the first sustained commercial production in the United States of the oil seed type of sunflower. Since 1966 many research programs in the United States have improved the oil yield in sunflower hybrids. The sunflower now ranks second among all oil seed crops in the world as an important source of edible vegetable oil.

NOMENCLATURE / TAXONOMY

The sunflower is a member of the **Compositae** family, the second largest flowering plant family, and one of the most highly developed from an evolutionary standpoint. Though its numbers are large, this family provides very few food plants. Other prominent members of the **Compositae** family include the aster, marigold, dandelion, blackeyed Susan, lettuce, artichoke, chicory and the obnoxious pest ragweed. Sunflowers are of the genus **Helianthus**, coming from the Greek words **helios** - sun and **anthos** - flower. In this genus there are 67 species, some with subvarieties. The common sunflower, **Helianthus annuus L.**, most familiar to the world, was named by Linnaeus in the 18th century because at the time this was the only known sunflower to live for one season.

The simple beauty of a sunflower becomes more complicated with closer inspection. The sunflower head contains two types of flowers; the ray flowers and disk flowers. The ray flowers or petals are broad based and ring the outer edge of the flower head. They serve as attention getters, waving to nearby insects, luring them to the flower center. The center flowers, called disk flowers, are tubular in shape and require pollen from another sunflower plant to be fertilized. The insects cross-pollinate the disk flowers which then develop into seeds. The height of the common sunflower ranges from 3 to 12 feet with some reaching to 18 feet. It is reported that in the 16th century a sunflower grew 24 ft., but this not reliable data. Current cultivated hybrids reach 5 to 6 feet.

CULTIVARS

Sunflowers grown in home gardens are divided into two categories -- **Helianthus** and edible seed types. **Helianthus** are grown for

their decorative flowers. While conducting research, the National Garden Bureau found that they come in many colors and sizes. Gardeners can choose a dwarf (15 inch high) fully double golden chrysanthemum type, or a 4 ft. pure yellow or white **Helianthus** with shades of primrose. The tallest **Helianthus**, 5 to 6 ft., provides the widest color range — yellow, gold, bronze, mahogany red and bicolor blooms. These flowers do produce seeds if left on the plant but they are small and probably best left for wildlife.

The most widely grown variety for edible seed is 'Mammoth'. First offered in the 1880's by a United States seed catalog, it was listed as 'Mammoth Russian'. One of the tallest sunflowers, 'Mammoth' is most often used to produce prize-winning seed heads. New cultivars have been introduced that are shorter — only 6 feet, earlier — 68 days, and hybrids with disease tolerances.

CULTURE

For an easy to grow garden flower you may not be able to top the sunflower. They will grow in almost any type of soil, tolerate most variations of wetness and require little in the way of pest control. However, they must have lots of direct sun, with little or no shading.

Start your sunflower with good soil preparation. While good fertile soil will yield the largest flower heads and meatiest seeds, the sunflower is not picky. They will grow in just about any type of soil except where there is standing water. Prepare the soil by tilling to a depth of 8 inches. Incorporate manure, compost, organic matter or a slow release general-purpose fertilizer into the soil, rake smooth and even. If planting in rows stake rows 3 to 4 ft. apart. Use the handle of a rake or shovel to trace a straight line and make an indentation in the soil 1/4 to 1/2 inch deep. Sow seeds in this furrow, 6 inches apart and cover with a 1/8 layer of fine soil. Germination will take from 5 to 10 days. The ideal soil temperature is 70 degrees Fahrenheit. The seeds and young seedlings can take very light frosts, but might die after a hard freeze.

When the first true leaves appear, thin the sunflowers to stand 2 to 2 1/2 feet apart. After the spring planting of sunflowers has been thinned, there is nothing to do but wait and water. Sunflowers thrive in hot dry weather and tolerate droughts, but benefit from large quantities of water applied as deep soakings. All of the above cultural information applies to both the sunflower for edible seeds and **Helianthus**.

HARVEST AND STORAGE

Sunflowers may be harvested when fully matured or when 2/3 of the seeds are mature. Watch the birds; when they are visitors to the seed heads, it's time to cover the head with cheesecloth to protect the seeds. The covered seed heads will be ready to harvest when the back is brown



*"I grew it myself" means a sense of pride to a child who displays the sizeable seed head from the sunflower plant.
Photo courtesy of National Garden Bureau.*

and dry and no traces of green remain. To harvest, remove the seed head with 1 to 2 ft. of stem attached. If not covered before harvest, use cloth or a paper bag to catch falling seeds, and hang in a warm, well-ventilated location (such as an attic or garage) to cure. After curing, when the backs are entirely brown and papery, remove the seed for final storage. To remove, merely brush them with your hands or a stiff brush and the seeds will fall right out. Do not wash before storage as this may cause the seeds to rot or mold. Store in air-tight containers in the refrigerator to help retain the most vitamins and food flavor. For eating, the seeds may be eaten raw or roasted.

SUNFLOWER NUTRITION

The sunflower seed is very high in many minerals, vitamins and essential acids. The only drawback is they are high in calories. The nutrients that are of quantity in sunflower seeds include protein, thiamine, Vitamin E, iron, phosphorous, potassium, calcium and the essential fatty acids Linoleic acid and Oleic acid. The amount of protein in sunflower seed is 24%; putting them in the same protein league as beef. They are higher in iron than any other food except egg yolks and liver. The potassium levels are similar to raisins, nuts and wheat germ, with higher calcium levels than soybeans. This great proportion of nutrients in the seeds is believed to improve cardiovascular health. Their high proportion of potassium but low sodium content makes the sunflower seeds act as a diuretic, which helps to lower high blood pressure. The essential Linoleic acid is necessary for growth, prostoglandin production and tests have shown it to be beneficial in reducing levels of serum cholesterol.

BROMELIADS Are Catching The Eye

By Mary Siemers

What is a bromeliad? Bromeliads are members of a large family of plants, the best known, the pineapple. Bromeliads grow in the wild from southern United States to Argentina. It is believed that most of the ornamental varieties are selected from the rain forest of eastern Brazil.

In some of their native countries, bromeliads are called "parasites". This is not so. Although many grow as epiphytes on trees, they derive no sustenance from their host. Some bromeliad species grow as terrestrials on the ground, while others are saxicolous and cling to the rocks. Most bromeliads are extremely easy to cultivate outside of their native habitat, and they are growing in popularity, for many good reasons. Bromeliads provide an exotic tropical look all year-round, bearing a double appeal. Most plants have both beautiful, brilliant, long lasting blooms, as well as ornamental and colorful foliage. They can be used indoors to beautify your home, as well as outdoors to enhance your patio or garden landscape. They require good drainage, especially if they are potted. Water generously, fill their cup, but do not allow them to be soggy. Varieties vary in their need from full sun to filtered light, but all prefer plenty of air circulation.

Bromeliads are practically carefree, and do exceptionally well in southern California. Give them so little, and they will reward you with so much beauty and pleasure in return. You will find that the many variety of forms available make bromeliad collecting an interesting hobby. You can get from the hardy *Aechmea fasciata* with its long lasting beautiful pink bloom, to the more delicate ones, such as genus *Guzmania* and *Vriesea*. San Diego is rich in resources for bromeliad enthusiasts. One such source is the Balboa Park Bromeliad Study Group, an independent club formerly called San Diego Bromeliad Study Group. This Bromeliad Study Group was formed for the purpose of studying every facet of the **Bromeliaceae**; to promote and maintain public and scientific interest in research, development, preservation, and distribution of **Bromeliaceae**. Besides the exchange of a wealth of information at the meetings, there is a generous plant raffle to provide everyone the opportunity to start, or to increase his collection at a minimal cost. The Balboa Park Bromeliad Study Group welcomes the public to the meetings on the second Tuesday of each month at 7:30 p.m. in Casa Del Prado Botanical Library Room, Number 104, Balboa Park.

The Balboa Park Bromeliad Study Group is a participant at the San Diego Zoo, by helping with the maintenance of "Doctor Leonard Kent" Bromeliad Garden located on the Jungle Trail. Dedicated members hold regular garden grooming sessions there to keep it at its best. Also at the Jungle Trail, the Balboa Park Bromeliad Study Group has a bromeliad exhibit in which members display their plants for the many zoo visitors to enjoy.

On Saturday and Sunday, May 10th and 11th, the Balboa Park Bromeliad Study Group will have a plant sale at Casa Del Prado patio in Balboa Park, from 10:00 a.m. to 4:30 p.m. At the sale will be some plants donated from Kent's Bromeliad Wholesale Nursery. The purpose of this special event is to raise funds towards a graphic to interpret the Zoo Bromeliad Garden to the public.

The Balboa Park Bromeliad Study Group is very pleased to be part of one of the world's famous institutions, and to help provide more enjoyment to the general public.

Mary Siemers is a Bromeliad hobbyist.



Billborgia pyramidalis var. striata

CHRIS WESTERGAARD WINS TOP INTERIOR PLANT AWARD

Chris Westergaard has won top honors in the San Diego Interior Plantscape Association's 1985 Awards Competition.

Westergaard's winning entry was a small residential planter, 2½ feet by 5 feet, incorporating black Mexican beach stone, feather (volcanic) rock, succulents and bromeliads in the Arthur Auerbach home on Neptune Avenue in Leucadia.



OLDEST SEED HOUSE IN AMERICA CELEBRATES 201st ANNIVERSARY

The oldest seed house in the country, in direct line from father to son for five generations, covering three centuries (18th, 19th and 20th), D. Landreth Seed Company, Bristol, PA, is celebrating its 201st Anniversary this year.

The high quality of Landreth seeds, shrubs, trees and plants became so well known that George Washington, himself, visited their model nursery and bought seeds, shrubs, trees for his Mount Vernon plantation.

Seeds and shrubs were also sold to Thomas Jefferson, third President of the United States, for his place at Monticello, Virginia. Seeds and rare plants were sold to Joseph Bonaparte, of Bordentown, N.J., ex-King of Spain, brother of Napoleon Bonaparte and husband of the reigning belle of the country, Miss Patterson, of Baltimore. (Their marriage was never recognized by Napoleon.)

President James Monroe bought fruit and ornamental trees, and in 1820, linden, balm of Gilead, hemlock, spruce and magnolias were bought for planting in Independence and Washington Squares, Philadelphia.

The elite of the country, visiting royalty, Presidents, generally, bishops, gentlemen and garden lovers generally, all over the United States, then represented by the Thirteen Original States, bought their seeds from Landreth's. Many of the almost priceless trees which now adorn many of the fine old estates in Pennsylvania and other States were brought from Landreth. Many rare and beautiful plants were imported to this country by Landreth, notable among which was the introduction of Zinnias in 1798.

In 1876, Burnet Landreth, of the third genera-

tion, was signally honored by being chosen as Chief of the Bureau of Agriculture of the U.S. Centennial International Exhibition at Philadelphia. In 1878, President Hayes summoned him to Washington and offered him the position of Commissioner of Agriculture, which he respectfully declined with thanks.

Burnet Landreth, up to 1928, was twice decorated by the French Government for services to Agriculture, first being made a member and later an officer of the Legion of Honor. He was also honored by Sweden, Brazil, Chile, Japan, India, Hungary, etc., for his advancement of horticulture.

Organized in the spring of 1784, by David Landreth, the first place of business was located on High Street, now covered by buildings at 1210 and 1212 Market Street, then well out in the country. Their first farm was on a tract which now includes 12th and Filbert Streets.

In 1789, the Landreth Nursery and Seed Gardens, at 22nd and Federal Streets, Philadelphia, PA., were opened and became a model nursery and seed-growing farm. The old mansion, embowered in vines and surrounded by rare shrubs and trees, became one of the first show places in Philadelphia, comparable to the famous Bartram Gardens, 54th Street and Schuylkill River. Bartram was the first botanist to King George, and a warm friend of David Landreth and his brother, Cuthbert, who became a member of the firm in 1787.

The D. Landreth Seed Company is now located at 180-188 West Ostend Street, Baltimore, Maryland 21230.

LEFT-OVER GARDEN SEEDS

Should they be planted the next season?

By Dr. Jacob R. Mittleider

The answer may be YES, or it may be NO!

Normal viability of garden seeds is generally good for several seasons, but the germination can be killed in just 30 to 90 days, depending on how the seed is cared for.

In areas where there is more than 20 inches of rain annually, all seed - except those in vacuum packed and/or sealed containers (tins or foil) should be stored in a refrigerator in temperatures slightly below 50°F. However, they should not be stored in a deep freeze unit!

Seeds are dry-dormant organisms which remain dormant until moisture and warmth are present, then they want to grow.

Ripe fresh seeds contain sufficient stored up energy to sprout and produce a new seedling plant when the right conditions are present.

Plants are living organisms which require moisture in order to live and grow.

In humid regions the moisture in the air (atmosphere) along with warm weather are factors favorable for seeds to germinate except that the moisture level in the air is too low for actual germination. But, still the high humidity has the affect of extracting the vital energy from the seed even though actual germination does not occur, seed viability dies. Under such conditions fresh seed can easily die in 30 days if it is stored at room temperature in unsealed packets or containers.

The recommended procedure is to store the seed in the vegetable storage area in a common home refrigerator.

Plants and seeds are dormant below 50°F., and the energy of the seed is preserved.

In areas that have less than 18 inches of rain annually the air is dry, therefore, seeds can be stored safely from one season to another at room temperature in a clean storage area along with other supplies.

The condition of the seed affects the crop. And, to avoid unnecessary disappointing results in plant performance, all seeds carried over more than two years should be checked for germination percent before planting in the garden. This can be done easily and quickly in the home kitchen or the greenhouse.

Here's How!

1. Take a flat cookie sheet or 8" tin.
2. Line it with some type of absorbing material like blotting paper or a tea towel.
3. Wet the blotting paper with fresh water.
4. Count out 50 or 100 seeds to be checked.
5. Lay the seeds on top of the wet lining material.

6. Cover the seeds and container with a tea towel or heavy paper.
7. Place the seed in a warm area where it can be inspected frequently.
8. Keep the seed wet and warm.
9. Inspect the seeds every day until sprouts appear.
10. Count the number of seeds that have sprouted within a two day period.
11. If less than 80 seeds germinate out of the 100 planted (or 40 out of 50) the seed is too poor to take the risk in planting it.
12. Old seed produces slow growing, weak plants, and poor results.

When the seed is good, at least 95 out of 100 seeds planted will germinate at the same time.

And, when all the factors involved in a successful garden project are considered, seed is at the top of the list in importance. This highlights the importance of planting only good seed.

Dr. Mittleider has developed a method which combines the best features of soil gardening and hydroponic gardening.



Geranium Plant Show Date Set

By Gerald D. Stewart

The San Diego Geranium Society will hold its eleventh annual Plant Show and Sale on the weekend of May 17-18, 1986 at the Casa del Prado in San Diego's Balboa Park. Hours will be 11:00 a.m. to 5:00 p.m. both days. The show will be held in the Majorca Room, No. 101, with the plant sale in the Courtyard on Saturday, and in the Barcelona Room, No. 103, on Sunday. The show is free to the public.

Hundreds of different kinds of geraniums will be represented - from species for the connoisseur to scented-leaved, ivy-leaved and zonal garden geraniums, to everybody's favorite, the regal, or Martha Washington Pelargonium. Expected too will be many forms not commonly seen, including the Deacon series of semi-dwarf plants; Stellars with their unique flower and leaf shapes; dwarf geraniums from all three major groups (zonal, ivy, and regal); golden-leaf types that flower well in open shade; ornamental-leaved from all three major groups; and many novelty flower forms - carnation, tulip, dahlia, phlox, painted lady, bicolor, quilled or cactus, and rosebud.

CALADIUMS

OUTDOORS AND IN

By Charles Dunn

There exists a plant more spectacular than the *diffenbachia*, more versatile than the *philodendron*, as easy to grow as the *aspidistra* and a close relative of all of the above. It is the caladium — the showiest member of the popular aroid family, rapidly growing in popularity with American gardeners.

Caladiums are noted for the sensational beauty of their foliage. What makes them really special is that they are even more valuable as outdoor garden plants than as houseplants. They function much like flowering annuals, but unlike these bedding plants, caladiums rely on foliage rather than flowers for color. The leaves are so wildly colorful, they could easily be mistaken for huge tropical blossoms. In effect, caladiums are perpetually in bloom. From late spring into autumn, they never fade nor require much attention.

Not only do caladiums perform well in sunny flower beds, shrub borders and in shade beneath trees, they also flourish in window boxes, patio planters, terrace tubs and hanging baskets. Now that container gardening is more popular than ever, caladiums deserve to become familiar elements in exterior designs.

And what gorgeous elements they will be. 'Fancy Leaf' caladiums, derived from a Brazilian species named *Caladium bicolor*, might be called 'Fantastic Leaf'. Dazzling splashes of pink, red, green, and white are typical decorations on the foot-tall heart-shaped foliage. Or leaves may primarily be creamy white or ruby red with veins and outer edges trimmed deep green. Gardeners have dozens of flamboyant varieties to choose from.

Caladiums are attractive enough to stand alone, or to be used in combination with petunias and other annuals.

Caladiums grow from bulb-like tubers available to home gardeners during spring and early summer. Seedlings and full-size plants are available, too, but tubers are more economical and simple to grow.

The gardener will find a new caladium planting and care pamphlet entitled, 'Fancy Leaf' Caladiums, especially helpful. The pamphlet is available free of charge by writing to: 704 State Road 621 East, Dept. GW, Lake Placid, Florida 3852. The guide suggests planting tubers in outdoor containers. Any well-drained potting mix suffices, but a particularly good mixture consists of three parts peat moss and one part sand plus bark chips.

Depending on the depth of the container and size of the tubers, set them one to three inches deep. 'Fancy Leaf' tubers are one to two inches in diameter. Use just one in an average flower pot. In large tubs and long window boxes, space tubers up to nine inches apart.



Water immediately after planting. Thereafter, moisten only when soil surface dries. Caladium roots do not appreciate continuously soggy soil. Of course, plants growing in full sun require more frequent watering than those in shade.

The first young leaves sprout in three to six weeks depending on soil conditions. Fertilize soon after to keep plants vigorous and foliage vibrant. Use any houseplant food designed for foliage plants. Reapply every few weeks, or according to label directions.

Gardeners have little else to do except reap the beauty they have sown. Leaves remain lush until temperatures start to drop in autumn. Foliage then will begin to yellow — but life is not over for the plants. Gardeners can dig up and store tubers for replanting the following spring. Dig them when daytime temperatures fall and remain below 60 degrees Fahrenheit. Air dry tubers on a sunny flat surface for several days. Allow leaves to fall off by themselves. This way they continue to supply tubers with needed nutrients.

Pack tubers in dry peat moss or sand and store in a well-ventilated spot where temperatures ideally are 70 to 75 degrees Fahrenheit. Never refrigerate. Do not fret if new growth appears during winter. It means tubers are healthy and prepared for a repeat performance next spring and summer.

Caladiums make exceptionally lovely houseplants. Grow them in bright windows, preferably where there is some morning sun. Raise indoor humidity by misting plants daily or by growing them on pebble-lined trays partially filled with water. Pots should rest on pebbles just above the waterline. Otherwise, care and storage is the same as for outdoor caladiums.

GIANT VEGETABLES

by Pat Vargas

Giant vegetables have captured the imagination ever since Jack climbed the magic beanstalk and Cinderella was whisked off to the Prince's ball in a giant-pumpkin coach. But modern garden seed developers have taken giants out of the realm of the imagination and into the world of the real garden. So if you've always considered growing giant beans and great pumpkins as something requiring a touch of magic, take heart. You can grow the giants, too, with just a few simple secrets.

The secret is really genetic. If you plant seeds for ordinary-size vegetables, no matter how much fertilizer and water and sunlight and care you provide, you'll still have ordinary-size vegetables. But if you plant seed for giants and provide all those things, you'd better have a lot of storage room!

Although there is no evidence that Cinderella's pumpkin was grown from **Atlantic Giant** seed, the variety does produce pumpkins large enough to hold a full-size person. Developed by Howard Dill and marketed by Henry Field's, the variety has reached 493½ pounds - a world's record. The vines can grow to 90 feet and the pumpkins gain up to 15 pounds a day during the summer growing season. By autumn, **Atlantic Giants** can grow so large that it takes eight men to lift them and a commercial scale for the weigh-in.

If that sounds a little large for your garden of giants, **Giant Show King** white squash can produce fruits that are considerably smaller - a mere 300 pounds. **Cobb Gem** watermelons produce crisp, sweet 130 pounders. **Bushel Gourds** come off the vines at 100 pounds and **Big Daddy** muskmelons tip the scale at 14 pounds.

Even if you don't have room for these giant sprawlers, don't despair. You can train a **Yard**

Long cucumber on your fence or plant a row of **Mammoth Sunflowers** behind the garage. But don't be surprised if they peek up over the roof's edge and rest 20-inch flower heads on the eaves.

If your garden grows along more traditional lines - radishes, tomatoes, cabbages and beans - there are giants for you as well. **Sakura-Jima Mammoth White Globe** radishes weigh up to 15 pounds and the red **Parat German Giant** produces baseball-size, globe radishes that might need to be sliced for the relish tray, but will be as tasty as their smaller cousins.

The Beef, a hybrid tomato introduced in 1985 and the **Hybrid Giant Bragger** tomato both produce slices too large not to hang over the edges of hamburger buns. **Zwann Jumbo** cabbages average from 20 to 25 pounds - but a 35 pounder is not unusual if you give them the proper care. And although we won't guarantee a beanstalk that



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ends in the clouds like Jack's, the **Jumbo Pod** bean will produce foot-long, inch-wide pods with a flavor that is too good not to have had a little magic in the packet.

Once you've chosen your giants, you need to tailor your growing practices to suit their big appetites. Vegetables are mostly water, and they can not attain their optimum size if they are stressed by lack of moisture. Give them plenty of water, sufficient fertilizer, protection from harmful insects and disease and shelter from the wind; keep them weed free (black plastic or other mulches help!), and you can easily grow prize winners for the Del Mar Fair.

If your ambitions reach beyond the local fair and into the record book, the 500-pound-pumpkin barrier remains to be breached. Howard Dill, the current record holder, gives these tips for growing record pumpkins:

Since pumpkins need plenty of sunlight and well drained soil, select your site carefully. Then give your pumpkins plenty of room - Dill spaces them 25 feet apart. Giant pumpkins need plenty of food. To provide it, Dill digs a pit 4 feet wide, 6 feet long, and nearly 2 feet deep. He fills the pit with 2-3 year old cow manure nearly to the top, and covers this with his best top soil, to which he has added some 10-10-10 fertilizer. Into this hill he sets his started plants when the soil has warmed up in the spring. Starting plants indoors to give them a head start is especially important in short-growing-season areas. Dill grew his record breaker in Canada, using seed started indoors. He provides plenty of water - several dozen gallons a day - because even one day without sufficient water can slow the giant's growth. Providing these things will result in enormous pumpkins, but if you're shooting for a record, the vines require special treatment as well.

Watch over them carefully in June and July and prune away any fruit that sets too early or too close to the root. In late July, let just one fruit set, about 15 feet away from the root. Then through August, topdress with manure tea or ferti-

lizer, paying particular attention to the "knees" of the vine - those knobby junctures where tendrils reach down into the soil to form a kind of secondary root system.

During the time the plants are growing and setting fruit; provide wind protection - Dill uses 4 foot high wind-breaks of plywood and particle board. Then inspect the pumpkins daily and be alert for any problems so they can be handled quickly before they slow your giant's 15-pound-per-day growth rate. Following Howard Dill's methods, you'll have only one pumpkin per vine, but it may be the one that reaches 500 pounds and puts your name in the **Guinness Book of World Records!** Barring that, and provided you're on good terms with your fairy godmother, you could park the Ford in the garage and take a fine pumpkin coach to the Halloween ball!

GUINNESS BOOK OF WORLD RECORDS

wants to expand its horticultural coverage.


If you have a record-sized vegetable, fruit or flower, write to Sterling Publishing Co., 2 Park Ave., New York, NY 10016. Include photos, notarized witness identification and backup information.

Cynthia R. Drake

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BAJA'S CENTRAL DESERT In San Diego

By Frank Thrombley

In 1979 Jim Gibbons, horticulturalist at the San Diego Zoological Society's Wild Animal Park, discovered the flora of central Baja. While on a fishing trip there he visited the home of the "BOOJUM" tree in the area of Bahia de Los Angeles and an idea was born. The Wild Animal Park shall have a representative or preserve of this fascinating central desert of Baja, California.

Mexico is a member country of the international community that has laws forbidding the exporting of the flora from its habitat. Therefore, a Mexican export permit, for the purpose of establishing a botanical garden and to show that the plants were not for the purpose of selling them, was required.

Jim drafted his first letter to the Mexican Government in Mexico City in the fall of 1979. In the summer of 1980, after much correspondence, he had his permit with the provision that samples of these plants would be sent to the Mexican Agriculture Department each time he collected.

In the meantime, a six acre hill at the Wild Animal Park was chosen as the site for this conservation project. Some paths across the hill were carved out of the local chaparral by the California Conservation Corps and the balance was left in its natural state.

In the fall of 1980 the first collecting trip took place. For the next four years, at least 12 trips were completed to collect and establish the Wild Animal Park's outstanding replica of Baja's central desert. There are three acres that can be considered completed with the balance just sparsely planted. There are 2000 plus Baja plants that have been re-established. Seventy five different species have been identified, and they range from 3" *MAMMILLARIAS* to 20 foot *FOQUIERIA columnaris* (Boojum tree) and a 2500 pound *PACHYCEBUS pringlei* (Cardon). At the end of 1984 a lot of energy had been expend-

ed, and everyone who had been involved was still enthusiastic. The Mexican authorities, however, decided not to renew the Wild Animal Park's permit, and the collecting trips ended. The goal to complete this project was not shelved, but indeed, was reaffirmed by Gibbons at this time. He is quoted as saying, "If we cannot collect, we will propagate by seed or cuttings and have, as much as possible, a representative of all the plants in Baja." This is certainly a worthy goal and a good attitude.

One can ask of the benefits from such an undertaking. Gibbons could not do this by himself or take enough of the Wild Animal Park employees to work in Baja for a given week to ten days required for any one trip. In fact, for a U.S. citizen to work in Mexico, that person needs a Mexican work permit. Through his many friends and contacts, he formed a volunteer group of cactus and succulent hobbyists and horticulturalists who were willing to help. Since this volunteer group was on its vacation, work permits were not required. The benefits for this group were many: they could study these plants in habitat, and enjoy them with members of their peers. In fact, hobbyists, horticulturalists and botanists from other U.S. states and countries, who knew of this project, started to participate, arranging their holidays to coincide with the planned trips.

A reference collection was started in one of the greenhouses at the Wild Animal Park. One or more plants from each species collected was added to this reference collection with proper documentation. This is now used to verify identification and to study these plants under favorable conditions. This greenhouse is also used for the propagation of plants for future planting in the Baja hill. Plants have also been donated to this collection by the Huntington Garden Foundation through their efforts at collecting on the island of Cedros off the Baja coast.

The Baja hill is maintained by volunteers and is open to groups who make arrangements with Jim Gibbons for walking tours. Some day Gibbons would like to open it to the public with self guiding walks. At present, however, the plants have to be established, inventoried, and an identification system set up for the general public. Walkways and boundaries for easy access and control must be established. Then the greatest benefit of all will be for all those who wish to see and/or study these wonderful plants at their leisure. Many of these plants are indigenous only in the central desert of Baja and can be seen by the few who wish to travel there.

In 1985 the Zoological Society of San Diego re-dedicated itself to increasing the understanding of the inherent worth of all life forms. This is to be done by exhibiting animals and plant life in their natural settings, thereby, applying its efforts and influence to the conservation of the earth's wildlife. Jim Gibbons is to be congratulated for his perseverance in this project which certainly falls within the guidelines of the Zoological Society's goals.

Poha Jam

by Ed Carman



Physalis peruviana, from the fruit of which poha jam is made. Photograph by the author.

Poha jam on toast for breakfast is one of the many delights of visiting the Hawaiian Islands. This golden, sweet-tart jam, full of small seeds, is a mystery never solved by most visitors. The jam is made from a kind of physalis, one of the exotic plants - probably transplanted by some sailing ship captain - now growing wild in many areas of Hawaii. Poha, the Hawaiian name, describes the way the seeds squirt out through the skin when the fruit is squeezed.

I grow *Physalis peruviana* (*P. edulis*) for the fruits to make this same delightful jam for enjoyment all year round. A member of the husk tomato family (*Solanaceae*), it is a large sprawling or scrambling plant spreading as much as six or eight feet during the second year. It can be contained to a three or four foot circle with several stakes and good stout twine in a spiral around the uprights to form an enclosure. This physalis is not entirely hardy so may freeze back or even be killed during a very cold winter. Like most perennials it will produce the best crop during the second summer after planting. If planted early in the year or under glass, then set out as soon as frosts are over, they will fruit very well the first year. The yellow flower is about an inch across with a dark purple spot at the base of each petal. The fruit forms inside a papery calyx which turns brown as the fruit ripens. During the summer and fall there are fruit in all stages so I pick frequently before fruit becomes overripe and shriveled. Small quantities are frozen whole till there are enough for a batch of jam. If you too would like to enjoy this jam just follow these directions.

Clean and wash the fruit. Mash the fruit and add one-half cup of water to four cups of fruit and bring the mixture to a boil. To each cup of boiled fruit add three-fourths of a cup

of sugar and bring to a rolling boil. Boil for fifteen to twenty minutes or till the jam starts sheeting from a metal spoon. Seal it in sterilized glass containers.

According to Sturtevant's *Edible Plants of the World* there are several other edible physalises. They have common names such as strawberry tomato, ground cherry, winter cherry, purple ground cherry, husk tomato, and Cape gooseberry. One of the first recognized was *Physalis angulata* described by Joachim Camerarius in 1588. The leaves of this are used as a vegetable in central Africa. *P. alkekengi*, with red fruit, has been eaten in Europe as a dessert. *P. peruviana* from South America is naturalized in Australia and other parts of the world and was listed as a garden vegetable in France by Vilmorin in 1883. *P. pubescens* is found wild across much of the United States and in tropical America and was listed in England in 1739. *P. ixocarpa* is an annual with large fruits grown in Mexico and sometimes seen in markets under the name of tomatillo.

Physalis alkekengi (*P. franchetii*) or Chinese lantern is a well known hardy herbaceous, one- to two-foot perennial grown for the decorative orange-red calyx. These are cut and cured and used in dried flower arrangements. There is also a dwarf form of the ornamental Chinese lantern and both forms grow with underground runners inclined to be invasive in the garden. All physalises are easy to grow from seed or from divisions of the perennial sorts.

The author, Ed Carman, Los Gatos, California, has a nursery specializing in uncommon plants.

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Growing Pelargoniums From Seed

By Carol Roller

Pelargoniums have been reproducing themselves from seed for as long as the plants have been part of the South African landscape. Shortly after a floret opens, the fertile anthers (five, six, or seven of them depending on the species) split and offer their contents. By the time the five-parted stigma has reflexed and exposed its receptive surfaces, the pollen has withered away. If the wind or a cooperative insect brings pollen from a more recently opened floret, pollination may take place. If so, the petals drop prematurely. The sepals fold upward around the ovary. The style (between the stigma and the ovary) elongates until it resembles the beak of a stork. The seed organ is a shizocarp, a dry vessel which splits into single seeded sections called mericarps. In pelargoniums the shizocarp consists of five mericarps. In about four weeks, the mericarps peel loose at the base, coil upward, unfurling silvery plumes, but remain attached to the tip of the beak. At this stage the unit looks like a chandelier. The tails, or awns, remain attached for an indefinite period of time, but the mericarp will eventually drop alongside the parent plant or drift in the breeze to a more distant location.

The mericarp is hygroscopic. When moisture touches it, the awn reorients itself until the pointed tip of the husk is screwed into the ground. If conditions are right, moisture will penetrate the hard seed coat and initiate the chain reaction which brings the seed to life. If the husk dries out, the awn will recoil, pulling the tip out of the ground. The seed will rest in its armor until dampness signals the husk to plant the seed once again.

The common species and those which had culinary or medicinal uses probably had names in the tribal languages. The Europeans discovered the most visible of the pelargoniums in the second half of the 17th century. A misinterpretation of one plant's description caused some pelargoniums to be regarded as malvas, members of the mallow family which includes the familiar hibiscus. As a result, the modern-day South African common names of those pelargoniums include the word "malva" in both English and Afrikaans. Seeds, plants, and dormant tubers were transported to the physic gardens and great estates of Europe. They were given the name "geranium" because the seed bearing structure was similar to that of the native European plants of the genus **Geranium**. Their distinguishing characteristics are two petals of one configuration and two or three of a second type (A few very rare species have only two petals.), the presence of ten stamens



GERANIUM SUMMER SHOWERS

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no more than seven of which bear pollen, and a nectar tube from the base of the upper petals into the pedicel. Geranium species have five identical petals, ten stamens all of which are fertile, and there is no nectar tube. There are also some differences in the husks and the seed dispersal mechanisms.

The first hybrids were natural crosses of similar species growing in close proximity. The early plant collectors did not immediately realize that these were hybrids. They were described in botanical literature as species, an error which is still perpetuated today because writers tend to use the oft-repeated references rather than the recently published data based on current research.

Deliberate hybridizing, naming of superior seedlings, and disposal of the inferior ones have been taking place since the early 18th century. Numerous distinctive plants of succulent habit were created. The range of so-called "scented geraniums" began by crossing the species which have scented leaves. Several tall-growing, fleshy stemmed semi-shrubs with five-petaled, small red, pink, lavender, or nearly white flowers produced the first zonal pelargoniums including popular red ones which became the ubiquitous "common garden geranium". Today this group includes a multitude of cultivars ranging from very large plants to minute ones in an extended color range and exhibiting many novelty forms. Another celebrated accomplishment of hybridizers was the development of **P. x domesticum**, the collective name for hundreds of named regal pelargoniums. Their primary ancestor was the wild malva, **P. cucullatum**, the first Pelargonium species to be cultivated as an ornamental (Cape Town, RSA, 1838-40). From the naturally occurring forms



A. *Pelargonium hortorum*
B. *P. tetragonum*
C. *P. domesticum*

D. *P. peltatum*
E. *P. hortorum*
'Jeanne'

of *P. peltatum* have come "ivy-geraniums". The tuberous rooted species are not part of these heavily hybridized groups. There are a few Pelargonium species from Australia, central Africa, Turkey, and St. Helena. These had no early role in hybridizing, but are currently being used. It is interesting to note that species of the genus *Geranium* have hardly been hybridized at all.

Except for some spontaneous sports and a few induced mutations, all the cultivars have originated from seed. Seeds of the much-hybridized groups - the zonals, regals, and ivies - are slightly longer than 1/8 inch, a fraction of that in circumference, and gray-green, tan, brown, or black. Since the seed coat is quite impervious to moisture, pelargonium seeds have been notoriously slow in germinating. One way to overcome this difficulty is scarification, the purposeful injury of the seed coat to allow the exchange of water and gases necessary for successful germination. Scarification can be accomplished by means of acids, hot water, abrasion or making a hole in the seed. A common method is cutting off the pointed tip of the seed with a very sharp tool such as a single-edged razor blade. With the awn of the husk toward the palm of the hand, the husk is gently secured with a finger. The end of the husk is cut off far enough

so that the tip of the seed is also removed. A lens is useful in confirming this. The interior of the seed will be green or cream colored. The seed should be pushed out of the husk. The husk is discarded. If the cut is too deep, the cotyledons will emerge with missing tips. A seed which has lost its husk must be examined carefully to determine which end should be cut. Damage to the other end will kill the embryo. Some scented-leaved types and a few of the rare species have smaller seeds, much shorter, more spherical. Without the husk, it is very hard to cut into these. Rubbing across an emery board or soaking in warm water can be tried instead. The seed is then planted in moist mix, covered, and gently watered.

In cultivation, as in the wild, some species produce an over-abundance of seeds while others may form only a few. It is a challenge to simulate a plant's natural habitat so that seed formation is encouraged. When numerous species are grown together in the open, there is danger that insects will carry pollen from one species to another causing the plant to set seed of hybrid character instead of the true species. In a closed environment that excludes insects, the pollination can be carried out by hand and the purity of the species retained.

Hybrids can and do produce seeds, but do so according to each hybrid's individual nature. Some are very self-fertile by hand or insect. The inbred seedlings grown from these seeds may closely resemble the parent, but are not genetically identical to it. Such a plant should be regarded as a seedling from 'Mother Plant', not as 'Mother Plant'. An inbred seedling may look quite different from its parent depending on the genes it happens to inherit. When a seed is an F hybrid, the result of pollen from one cultivar fertilizing a second cultivar, the genetic pattern can become very complicated. Some cultivars produce no pollen; others do not have fully developed pistils. Certain pairings are not fruitful due to incompatibilities such as different chromosome numbers.

One noteworthy cultivar is 'Madame Salleron'. This small, clumping plant has white-edged green leaves on numerous short stems. What makes 'Madame Salleron' so unusual is that it does not flower. It has been grown for such a long time that there are no records of its origin. It must be a cross between two very divergent parents with different chromosome counts because 'Madame Salleron' is lacking one chromosome. Not content with its flowerless condition, 'Madame Salleron' repeatedly sports a gangly, sparsely leaved mutant with pink flowers. This form, called 'Little Trot', is also infertile.

Like other cultivars, 'Madame Salleron' and 'Little Trot' are grown from cuttings. All the plants of a given cultivar have originated from one particular seedling by means of cuttings, many generations of them.

For many years, nursery catalogs have sold seeds. The seedsmen created flowery or pseudo-Latinized names for assorted seeds from zonals and regals, assuring the buyer that a full range

of colors is contained in the mixture. From the late 1950s until the late 1970s, an imported line of seeds from dwarf zonals was marketed. The prospective buyer was advised that half the seedlings would be six inches in height or less and the remainder would be normal sized. An ivy-leaved mix was occasionally offered. The scented were always available, usually the basic scented species such as 'Apple Scented', 'Coconut Scented', and 'Rose Scented' in separate packets plus a blend of hybrids. Except for the scented species, the plants grown from open-pollinated seeds of this type are generally inferior to the top-rated named cultivars. The undesirable characteristics such as ranginess and small florets seem to be dominant. This is the reason hybridizers cull their seedlings and keep only the very few which are superior to the parents.

The first F seed line was 'Nittany Lion Red' which was developed at Penn State's Department of Horticulture. Bacterial stem rot had become a serious problem in cutting-grown zonals. The organism, *xanthomonas pelargonii* (now called *X. campetris*), persists in plant tissues, becoming active when conditions for its growth become favorable. Since bacterial stem rot is not transmitted through seeds, a breeding program was undertaken. Cultivars having a low susceptibility to *Xanthomonas* were used to combine the best flowering habit, plant form, and growth rate into a true-breeding strain with a parent generation which would seed heavily. By definition, the F is the

first filial generation. In simple terms, it is the result of crossing two plants which are different from each other. Several year's work was required to produce the seed parent and the pollen parent. The supply of these was increased. The two groups were then crossed to obtain the seed.

'Nittany Lion Red' became available for the 1965 growing season. In the 20 years since then, there has been active competition among domestic and foreign seed breeding companies to win approval for their new introductions. Many F lines soon fell by the wayside. Some have persisted since the early years. New ones grace the pages of the catalogs each year.

The seed-grown plants are produced in massive numbers by commercial growers. These plants have expanded the zonal pelargonium market. For instance, in northern latitudes where early season marketing of locally produced cutting-grown zonals is impossible because of light limitations, the seeds can be quickly (14 to 17 weeks or less) and predictably grown into compact free-flowering plants which will provide a full season of pleasure. In these cold areas they are regarded as summer flowering annuals, which will be replaced next spring. The seed-grown plants are also marketed in year-around growing areas, but in coastal California the cutting-grown plants offer a much broader selection of types. The seed strain zonal singles can be obtained in separate colors - red, pink, salmon, white, and red with a spreading white center. These are the backbone of the

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commercial trade, the modern "garden geranium". Beginning in 1977, there has been a limited number of semi-double to double ones, mostly in red and pink tones. Since 1982, there are several basket-zonal lines in red and salmon. Three novelty flowered zonal strains are presently being sold. At least one of them produces a very high percentage of rogues which do not have the desired flower form. The most recent entry into the seed market is a single flowered ivy-leaved line which is sold in mixed colors only.

All these types are available to the home gardener in small, but expensive packages. The seeds are scarified and the husk has been removed. Germination is generally good, but unless they are grown under the precise conditions prescribed for greenhouse production, they will take longer than the advertised time to bloom. A home-grown plant is likely to be taller than a nursery-purchased plant of the same strain because many of the commercial crops are treated with growth regulating chemicals to make them more compact and accelerate flowering. The commercial plant may eventually become less compact when it outgrows its chemical dependency. *Xanthomonas* continues to be a major problem, causing an estimated one million dollar loss to the nursery trade in 1985. Unfortunately, the seed-grown plants can be infected if sanitation is lax. Furthermore, it has now been proven that several pertinent viruses are seed-transmitted.

The zonal, regal, and scented seeds of questionable paternity can still be bought. In areas where many pelargoniums are grown, seeds of equal quality can easily be obtained from friends and neighbors. Although the price is right, it would be better to get cuttings from a specific plant instead.

Pelargonium seeds have given pleasure to everyone who has grown or admired a hybrid pelargonium. The F strains have brought a new specialty to the nursery trade. A worldwide network of devoted collectors including members of the academic community circulates seeds of the species so that the plants can be conserved for future generations to enjoy and use. The African natives used concoctions of pelargonium to cure what ailed them. Modern medicine has not yet revealed all the pelargonium's secrets. Any seed that plants itself must know something.

NOTE: The University of California Irvine Arboretum has established a gene bank specializing in endangered bulbous and cormous plants from southern Africa. Seeds and pollen are maintained in cryogenic storage to ensure the future of those species. The collected plants are grown at the arboretum. The gardens, which display a variety of plantings including aloes and pelargoniums, are open for inspection on weekdays by prior arrangement with the arboretum.

Carol Roller is well known in Southern California as a speaker as well as a hybridizer of geraniums.

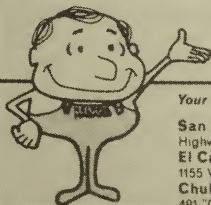
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NAMES 1986 MINIATURE
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winners

The American Rose Society (ARS) has named its "E for Excellence" recipients for 1986, according to Harold S. Goldstein, ARS executive director. Rainbow's End and Jean Kenneally received top awards in the judging which places miniature roses on trial for two years to determine best all-around miniatures.

"Each year, new roses are sent to the five test gardens across the country where they are closely watched, rated and assessed according to a number of criteria," Goldstein said. "At each of these test sites, one of which we have here at the American Rose Center, new roses are rated regularly during the growing season on such factors as color, resistance to disease, quantity of flowers produced, shape and quality of bud and flower."

Rainbow's End was introduced by Nor'East Miniature Roses, Inc., hybridized by Harmon Saville of Rowley, Mass.; Jean Kenneally was introduced by Tiny Petals Nursery, hybridized by Dee Bennett of Chula Vista, California.

Rainbow's End has a dramatic high-centered bloom that is bright yellow edged with scarlet. The blooms are borne one-to-a-stem and in small sprays in profusion. The sturdy wide petals open slowly while holding the center. The plant is vigorous, symmetrical and compact, and best of all, easy to grow.

The foliage is clean and leathery dark green. Bloom production begins early and is continuous on mature plants. Grown indoors or in shade the bloom is pure deep lemon yellow without the red edges. Rainbow's End is an exciting new variety for the garden, show table and as a cut flower. Plant height is 12-16 inches. It is a cross between Rise 'n Shine and Watercolor.

Jean Kenneally is an exceptional plant and bloom. The bloom is a true apricot with a high circular center held erect on a very straight stem. The foliage is very attractive and well-proportioned making it excellent for the show table or as cut flowers.

The plant is very compatible and produces an abundance of one-to-a-stem blooms all season long.

It makes an excellent potted plant and can reach 24 inches when grown in the ground. It is a very clean attractive plant with very good plant growth and habit.

Goldstein added that "one of the primary factors in choosing an award-winning miniature roses for their own gardens can be confident that they will have a minimum of difficulty with the maximum pleasure."

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MAY 9-12

38th Annual Tulip Festival, Albany, New York. Info: Elizabeth Hemstead, Pamela Sawchuk Associates, 170 Washington Ave., Albany, NY 12210. (518) 462-0318.

MAY 11-19

Festival of Spring. Tulips, decorated boat parade, water ski shows, outdoor craft market. Festival of Spring, 275 Bay St., Ottawa, Ont. K1R 5Z5 Canada. (613) 238-6231.

May 14-17

Tulip Time Festival, Holland Michigan. Dancing, street scrubbing, tulips, parades, Dutch market, garden tours. Tulip Time Inc., 150 W. 8th St., Holland Michigan 49423. (616) 396-4221.

MAY 15-17

46th Annual Orange City, Iowa Tulip Festival. Write: Orange City Chamber of Commerce, 125 Central Ave., S.E., Orange City, Iowa 51041.

MAY 30-JUNE 15

Portland Rose Festival. International rose show, downhill ski race, hot air balloon race, band festival, outdoor concerts. Portland Rose Festival Assoc., 220 NW 2nd Ave., Portland, OR 97209. (503) 227-2681.

JUNE 26-28

Annual convention The American Hosta Society. Hilton Inn, North, 7007 North High Street, Columbus, Ohio 43285.



Historical Photos — Orange City, Iowa

Taken by Pat Ziebarth — Kingston Hall



Book Reviews

By Mary Lou Orphey

MORE FOOD FROM YOUR GARDEN, The World-Famed Mittleider Method of Grow-Box Greenhouse Gardening by Jacob R. Mittleider. Illustrated by Don Berggren. 1986 Revised Edition. Woodbridge Press Publishing Company, P.O. Box 6189 Santa Barbara, CA 93160 and also G.F. Enterprises, 969 East 4800 South, Suite 3D, Salt Lake City, Utah 84117. 6 x 9 in. paperback 197 pages.

Using the Mittleider Method of grow-box greenhouse gardening, it is possible to meet the nutritional need of starving nations. The method is labor intensive and requires very little farm equipment. It can be used on any kind of ground or on concrete. The method combines the best features of soil gardening and hydroponic gardening. Enough food can be produced on an eighth of an acre to feed a family plus enough to sell for living expenses.

The special features of this exciting method are: custom soil, simple garden grow boxes, proven plant nutrition, systematic watering, productive plant care and protection from weather.

Although the quantities listed are for large scale operations, they can be reduced and made applicable to backyard gardening. One would need to determine the availability of some of the fertilizers and amendments in smaller quantities to be cost effective for the home gardener. However, many ideas and principles are pertinent to home vegetable gardeners. Those interested in new methods of food production will find **MORE FOOD FOR YOUR GARDEN** most informative.

THE BUTTERFLY GARDEN by Nick Rossi P.O. Box 251, Saddle River, New Jersey 07458 4 1/2 x 5 3/4 in. paperback \$14.95 includes kit. 15 pages.

Few can ignore a beautiful butterfly fluttering around one's flowers. Isn't it a lovely sight?

One can learn which plants attract butterflies and how to persuade them to visit the garden. It is called the Basic Butterfly Diet. There is also a Home Garden Butterfly Kit available 10 packets of seeds to grow flowers butterflies love.

This little guide is brightly colored and has pictures of the twenty-four most popular butterflies in North America.

VITA'S OTHER WORLD, A Gardening Biography of V. Sackville-West By Jane Brown. 1986. Viking Penguin, Inc. 40 West 23 Street, New York, N.Y. 10010 7 3/4 x 10 in. hardback 240 pages. \$20.00

Victoria Sackville-West was a noted poet, voracious writer, amateur gardener and wife of diplomat and writer Sir Harold Nicholson. Vita and her husband created what many consider to be the most beautiful gardens in all of England - the gardens at Sissinghurst Castle.

The author has written a fascinating biography about an unusual woman who had a romantic passion for poetry and flowers. Vita's most notable works, **THE LAND** and **THE GARDEN** have been lost in time's shuffle. However, many excerpts of these extensive poems are included in the book.

Due to the enormous volume of her writing, one has a rare opportunity to gain insight into the character and personality of this creative individual. Haunted by the loss of her ancestral home, her beloved Knole, Vita seeks to find an inner peace through creating romantic gardens at Long Barn and then at Sissinghurst. The gardens were a joint effort between Vita and Harold. The combination of Vita's romantic nature and Harold's classical style, their use of color, and the perfect marriage of architecture and landscape design have melded into the unique showplace that is enjoyed by more than 100,000 visitors a year.

VITA'S OTHER WORLD - The World of Gardening is an intriguing book. Besides glimpsing a way of life foreign to many Americans, it is an interesting study in human nature. The book is illustrated with black and white photographs from Vita's own collection as well as full color photographs of Sissinghurst and other gardens. Take some time and find out about **VITA'S OTHER WORLD**.

THE PATIO GARDEN By Hazel Evans 1985 Penguin Books, Viking Penguin Inc., 40 West 23rd Street, New York, N.Y. 10010 8 3/4 x 8 3/4 in. paperback \$12.95 167 pages.

The author is the gardening editor of "Good Housekeeping" and is an authority on small space gardening.

THE PATIO GARDEN is written for busy people who enjoy plants and have a little space to create an outside room. Splendid examples in using small spaces are: Patio on Two Levels, City Patio Garden, Shady Terrace, Tiny Yard Patio and Patio for Sun and Shade. Various aspects of patio construction are discussed as well as use of water in the garden.

The best plan for planting consists of a mixture of established shrubs, trees and climbers underplanted with a variety of perennials and some annuals. Lists and descriptions of appropriate plants are included.

This book is a particularly good resource for ideas on materials, tables and chairs, containers, lights, statutes and other accessories.

GARDENS OF A GOLDEN AFTERNOON

By Jane Brown 1986 Penguin Books. 40 West 23rd Street New York, N.Y. 10010 7½ x 9½ in. paperback \$12.95 (US) \$14.95 (CAN) 208 pages.

Jane Brown has written a scholarly book on the unique partnership of Gertrude Jekyll, noted English landscape designer, and Edwin Lutyens, internationally acclaimed architect. 'A Lutyen's house with a Jekyll garden' was noted for its excellence in detail and scale.

The book has been thoroughly researched. The detailed drawings and keys to planting of their gardens provides an opportunity to study the design principles, color associations and attention to detail that was the style of the Jekyll-Lutyen's Gardens. The photographs are an invaluable aid in capturing the beauty they created.

The detailed drawing of Munstead, which was Gertrude Jekyll's home designed by Lutyens, and the fifteen acre garden, provides a rare glimpse of the meticulous planning used by these legendary partners in their first venture together as kindred spirits creating their distinctive style. From there we see a progression of other projects they shared such as Orchards, Deanery Garden and Folly Farm.

They treated the garden as a house outdoors and strongly believed in functional beauty. The use of water in a garden must have a purpose - still water was for reflection, moving water fed plants or changed elevation. Pools were simple shapes and were filled to the brim, with steps leading down into the water. Terraces were an integral part of the design as they were used for afternoon tea. The use of color was critical and predicated on the theory of Michel Chevreul.

GARDENS OF A GOLDEN AFTERNOON

is a fascinating study in the art of landscape design as practiced in the nineteenth century. It is reassuring to know this book has been written for now the creative partnership of Jekyll-Lutyens will last throughout time.

RHYMES TO PREDICT THE WEATHER By Don Harrerty 1985 Spring Meadow Publishers. P.O. Box 3108 Seattle, WA 98103 5¼ x 8¼ in. paperback 132 pages \$8.00 + \$1.00 shipping/handling.

Have you wondered why it is foggy in June or if we will have rain from that storm off the coast? RHYMES TO PREDICT THE WEATHER explains all about air movement, barometric pressure, temperature, humidity and other weather phenomena.

The author has used rhymes to help the reader remember basic principles. For example:

"When rain clouds make their way real low,
They drench the earth from head to toe.
When rain clouds pass a little higher,
They leave the earth a little dryer.

Gardeners spend lots of time outdoors and make decisions on planting, watering, and protecting plants from frost based on their observations and experience with the weather.

Many buy fertilizers, soil amendments and tools to improve their own productivity and that of their garden. RHYMES TO PREDICT THE WEATHER is a great addition to their tool basket. Keep it handy for answering questions about those clouds overhead, that change in wind direction, or a host of other questions.

The book is fun to read. It is a good teaching tool for youngsters and oldsters who want to learn about the weather. Images abound:

"High pressure air comes rolling low;

Low pressure air goes spinning high.

The winds roll down, then up again,

A fantasy ferris wheel in the sky."



Begonia Garden

By Elizabeth B. Glover

On August 22, 1972, the Alfred D. Robinson Branch of the American Begonia Society dedicated a new begonia garden planted in honor of Alfred D. Robinson, in the Botanical Lath House at Balboa Park, in San Diego, California. At that time a begonia bird bath was also lovingly dedicated to Alice Mary Clark.

Members of the Alfred D. Robinson Branch of the American Begonia Society met again on March 14, 1986 at the Botanical Lath House. Under the direction of Donna Nordstrom, they planted and labeled the many begonia plants they furnished to refurbish the begonia garden.

Several plant societies have been donating plants and expertise to make this a show place. Donna Nordstrom has really made a marked improvement in this area and welcomes plants and assistance from all garden clubs in the area.

If you have not visited the Botanical Lath House recently, you have missed a spectacular sight. In March, the colorful plants in bloom included impatiens, begonias, cymbidiums, orchids, kafir lilies, bromeliads, azaleas, primroses, spathiphyllum and daffodils. Each time you visit, you will see different blooms. The next time you are in the Balboa Park when the Botanical Lath House is open, stop by and behold the beauty.



BEGONIAS Margaret Lee

Watch tuberous begonias for signs of mildew, correct with dust or spray.

Check cane type begonias and cut back if needed.

Spray for insects, using malathion base spray. Finish repotting where needed, use a light porous mixture.

Feed plants with a well-balanced all-purpose fertilizer.

Water as needed - must keep moist but not wet.

Check tuberous type for drainage; repot to a larger container if needed, adding fresh soil. Stake any tall stems.

BONSAI Dr. Herbert Markowitz

Shape deciduous trees by pruning, but only finger-prune evergreens with small needles.

Defoliate most deciduous trees in June. These may be transplanted afterwards.

Develop a watering schedule -- avoid over-watering, especially the pines.

Fertilize trees with an organic fertilizer. Do not overfeed the pine trees.

Rotate trees often to maintain proper shape.

Check for insects; use a mild insecticide, if necessary.

Control any mildew that might appear; use sulphur dust or a liquid spray.

BROMELIADS Mary Siemers

Check plants for pests, especially scale; concentrating in the leaf axile. Control by spraying or dipping plants into a solution of 1 tbs.malathion (water base) per gallon water. Shake solution from plant. Repeat treatment in two weeks if necessary.

Fertilize plants in warm weather months -- use water soluble fertilizer once a month, using $\frac{1}{2}$ recommended strength. In addition, a time released fertilizer may be used. Be sure to water plants thoroughly before fertilizing.

Cut off shoots (pups) during warm weather for faster and healthier growth. Best if they are 1/3 or 1/2 size of mother plant.

CACTUS & SUCCULENTS Frank Thrombley

Groom your plants if you have not already started. Remove old flower buds, dead leaves, and dirt for a better looking plant. This will help prevent mealybugs, etc. hiding in the dead vegetation.

Examine your plants for mealybugs, scale, aphids, etc.

Use either a soil systemic pesticide and soak the soil or spray with a contact pesticide. Read the labels and follow the instructions.

Watch for ants; they do not harm the plants but are harvesting mealybugs. Treat as above.

Start repotting those that have outgrown their containers.

Change compost for those plants kept in same pots several years.

Repot all newly acquired plants into the soil or compost you normally use. This will help maintain uniformity throughout your collection.

CAMELLIAS San Diego Camellia Society

Transplant plants that have started new growth.

Repot plants that have outgrown their containers.

Start a feeding program; use an acid type fertilizer -- cottonseed meal, special camellia mixes, or liquid fish.

Maintain a regular watering schedule. Do not allow plants to completely dry out.

Mulch plants with redwood compost.

Watch for leaf beetles; spray or dust to discourage.

Prune for shaping and thin out center wood for good air circulation.

DAHLIAS Abe Janzen

Plant smaller varieties and give regular care to growing plants.

Draw soil around the plants as they grow.

Feed with low-nitrogen fertilizer (4-10-10) either dry or liquid.

Spray weekly to guard against leaf miners, thrips, and aphids.

Water when top soil is dry; when buds are forming, soak deeply and more often.

EPIPHYLLUMS Mary & Warren Kelly

Prune plants to shape - take cuttings after flowering.

Put out snail bait and watch for other pests.

Remove wilted flowers by cutting about 3/4 unless you desire seed to form.

Take care in watering. Do NOT allow to dry out; keep soil damp but NOT wet.

Give plants a balanced feeding after blooming season.

Stake long spindly growth.

FERNS Ray Sodomka

Water thoroughly - maintain humidity by wetting surrounding areas.

Fertilize with high-nitrogen, using liquid or pellets twice a month.

Plant spore.

Spray for aphids and scale, if necessary.

Remove dead fronds.

FUCHSIAS William Selby

Watch for whitefly and inchworm during warm weather. Spray with appropriate spray (no oil type) or systemic if they appear. Use material according to manufacturer's instructions.

Water - do not allow your plants to dry out.

Stop pinching about 6-8 weeks prior to your show.

Fertilize often with a reduced strength fertilizer.

GERANIUMS (Pelargoniums) Carol Roller

Water thoroughly when plants become somewhat dry. Allow excess water to drain away. Keep foliage as dry as possible.

Continue feeding a balanced fertilizer dissolved in water, using less than the recommended amount as often as needed to keep plants growing well.

Continue a pest control and disease prevention program using all products according to manufacturer's directions.

Groom plants, removing discolored leaves and faded flowers.

Avoid taking cuttings from regals (Martha Washingtons) and scented since this is their flowering season. Cuttings may be taken from ivies and zonals, if desired.

Protect tender plants from the sun if the temperature is high.

Continue to rotate plants on a regular basis in order to produce well-shaped plants.

Enjoy your plants at the height of their season.

GESNERIADS (African Violets, Gloxinias, etc.)

Mike Ludwig

Guard against mealybugs, scale, aphids, and ants. Treat with a non-oily spray to prevent damage to foliage.

Watch movements of the sun. Make sure no plant is getting more sun than it needs or burning of leaves will occur.

Watch watering of plants - do not allow to dry out or to stay too wet.

Watch temperature changes, especially inland, mist foliage in mornings and evenings on hot days, but do not water in the morning on hot days.

Keep spent flowers picked off.

Pinch plants to keep them lush and full.

IRIS San Diego-Imperial Counties Iris Society

Keep watering while plants are still blooming.

Use systemic insecticides for aphids.

Transplant tall-bearded after blooming.

Keep Siberians damp and feed them with camellia food for additional growth.

Feed Japanese iris also with camellia food in the water in which they grow. Give plenty of water if not grown in pools.

Feed spurias with low-nitrogen fertilizer.

Prepare beds for planting by working in humus and fertilizer before replanting.

ORCHIDS Charles Fouquette

Spray and mist on hot dry days.

Control snails - use metaldehyde or other poison. Be careful.

Maintain pest control against red spider, mealybug and scale; use malathion or other non-petroleum base spray.

Start high nitrogen feeding of cymbidiums, and a complete fertilizer on phalaenopsis and cattleyas.

Keep exterior planting mixes moist.

Check and prepare to paint glass, or erect shade cloth in areas of patio or hot house that have too much sunlight.

Continue heavy watering of cymbidiums.

Be careful NOT to have sudden temperature changes - keep bud blast to a minimum.

Mist seedlings in mornings and early afternoon to be dry before nightfall.

ROSES Brian Donn

Keep bushes blooming, remove old blooms as they drop petals or turn into faded blobs.

Keep bushes well watered during hot spells.



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CASA DEL PRADO - BALBOA PARK
SATURDAY, JUNE 14, 1986
SUNDAY JUNE 15, 1986
10 A.M. to 4 P.M. BOTH DAYS

Avoid spraying with insecticides or fungicides when very hot.

Thoroughly wash off foliage and canes and allow to dry. Next day thoroughly spray with kelthane for red spider mites. Be sure to wet every leaf and stems with spray.

Feed established plants with a complete rose food with trace elements.

Feed newly planted bushes a weekly feeding of diluted liquid plant food.

Mulch bushes to keep roots cool and to save water.

VEGETABLES

Plant seeds of beets, carrots, turnips, radishes, snap beans, summer squash, corn and cucumbers. If plants of cucumbers and summer squash are used, they will bear sooner than plants from seed.

Plant leaf vegetables such as lettuce, endive, and spinach in partially shaded locations during the hot months.

Fertilize vegetables in good soil (except corn, lettuce, and tomatoes) every three or four weeks, and those in poor soil more frequently.

Fertilize corn when it is 8 inches tall and again when 18 inches.

Fertilize lettuce once when it is half grown.

Fertilize tomatoes once a month AFTER fruit has formed and NOT before.

Water furrows by flooding or by drip irrigation instead of overhead sprinkling which can run risk of disease.

Use a fertilizer blended for vegetables. Follow directions on the container for the amount and method of application.

GREEN THUMB ITEMS

Remove dried bulb foliage and tie back other foliage to allow to dry naturally before removing.

Feed azaleas and cut back dead wood.

Plant gladiolus bulbs for fall bloom.

Plant summer annuals for color.

Invest in blooming perennials available in June - daylilies, agapanthus, shasta daisies, etc.

Pinch chrysanthemums for bushier plants with more buds in the fall.

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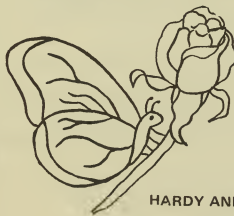


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1986 SAN DIEGO FLOWER AND GARDEN SHOW Del Mar Fair

June 19-July 6 - Division 12

Student and Amateur Flower Arranging

The Flower and Garden Show at the Del Mar Fair has evolved over the years to become one of the largest floral expositions in the United States. It should come as no surprise to learn that the flower arranging competition has always been one of its most popular attractions. This year the Fair plans an expanded display of floral designs. Arrangements will be presented on a special raised platform, each on its own pedestal.

We cordially invite all student and amateur arrangers to vie for more than \$1,500 in prize money, prize ribbons, recognition by over 700,000 fair visitors, and the chance to be crowned "Floral Designer of the Year". Complete details and entry forms will be available beginning late March at all San Diego County libraries or directly from the fairgrounds.

Premiums offered per theme: First \$10, Second \$8, Third \$6, Fourth \$4. Entry Fee: \$1 per entry.



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Exhibited June 19 and 20
Pomp and Circumstance
Sky Blue
Bienvenidos Amigos
M'Lord and Lady
Ivory Tower
Rock of Ages (Dry)

Exhibited June 29 and 30
Queen for a Day
Dutch Touch
Geometric Progression
Seeing Red
Dynasty
Branching Out (Dry)

Exhibited June 21 and 22
Hawaiian Punch
Tickled Pink
Shady Lady
Singular Attraction
Tie the Knot
Black Beauty (Dry)

Exhibited July 1 and 2
English Tea
Tall Order
Triple Play
Silver Streak
Lady and the Tramp
Home on the Range (Dry)

Exhibited June 23 and 24
Tokyo Rose
Coffee Break
Renaissance
Two to Tangle
Fantastic
Stick to It (Dry)

Exhibited July 3 and 4
Coming Up Roses
Old Glory
Hasta Be Shasta
Tall and Proud
Liberty
Amber Waves (Dry)

Exhibited June 25 and 26
Blue Danube
My Fair Lady
Math Hysteria
Succulent Repast
Fire and Ice
Drifting Along (Dry)

Exhibited July 5 and 6
Adios Amigos
Back to the Future
Magic Kingdom
Zoo's Who
(Animal Figure
using vegetables)
Curves Ahead
Curious Yellow (Dry)

Exhibited June 27 and 28
Go for Baroque
High and Mighty
China Doll
Shocking Pink
Twice Blessed
Fall Forward (Dry)

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San Diego, CA 92106
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Tailbot & Canon, 10:00 a.m.

POWAY VALLEY GARDEN CLUB

Pres: Mrs. Matt Sokach
P.O. Box 381
Poway, CA 92064
2nd Wed., Hally's Garden Room
13519 Poway Rd., Poway, 9:00 a.m.

RANCHO SANTA FE GARDEN CLUB

Pres: LaVerne M. Schlosser
P.O. Box 1807
Rancho Santa Fe, CA
2nd Tues., Rancho Santa Fe Garden Club
Avenida de Acadias, Rancho Santa Fe
7:30 p.m.

SAN DIEGO ASSOCIATION OF

PROFESSIONAL HORTICULTURISTS

Pres: Miss Cynthia Drake 271-8933
11121 Saunders Court
San Diego, CA 92131
4th Mon., Casa del Prado Rm. 104, 7:30 p.m.

SAN CARLOS GARDEN CLUB

Pres: Mrs. Paul Hebert 463-7517
6450 Lake Shore Drive
San Diego, CA 92119
4th Tues., Home of members, 9:30 a.m.

SAN DIEGO BONSAI CLUB, INC.

Pres: Mr. Stan Childs 583-0562
5460 Baja Drive
San Diego, CA 92115
2nd Sun., Casa del Prado, 1:00 p.m.

SAN DIEGO BOTANICAL GARDEN

FOUNDATION, INC.

Pres: Mr. Harry C. Haelsig 582-0536
4750 55th Street
San Diego, CA 92115

SAN DIEGO BROMELIAD SOCIETY

Pres: Mr. Jack Percival 222-7327
5205 Kearney Villa Way, Suite 210
San Diego, CA 92123
1st Thurs., Byzantine Catholic Church
2235 Galahad Rd., Serra Mesa, 8:00 p.m.

SAN DIEGO CACTUS & SUCCULENT

SOCIETY

Pres: Dr. Leroy Phelps 280-9690
4094 36th Street
San Diego, CA 92104
2nd Sat., Casa del Prado, 1:30 p.m.

SAN DIEGO CAMELLIA SOCIETY

Pres: Mr. Palmer Groenwold 291-8912
1139 Madison Ave.
San Diego, CA 92116
3rd Wed., Casa del Prado, 7:30 p.m.

SAN DIEGO COUNTY BRANCH

NATIONAL FUCHSIA SOCIETY

Pres: Janet Wright 722-3373
610 N. Nevada Street
Oceanside, CA 92054
2nd Thurs., Palmquist School
1999 California St., Oceanside 7:00 p.m.

SAN DIEGO COUNTY DAHLIA SOCIETY

Pres: Mr. Martin Walsh 277-5165
4077 Mt. Everest Blvd.
San Diego, CA 92111
4th Tues., Casa del Prado, 7:30 p.m.

SAN DIEGO COUNTY ORCHID SOCIETY

Pres: Mrs. Richard Bechtel 442-7180
10212 Vista de la Cruz
La Mesa, CA 92041
1st Tues., Casa del Prado, 7:30 p.m.

SAN DIEGO DAYTIME

AFRICAN VIOLET SOCIETY

Pres: Mrs. Toni Baker 582-7516
6475 50th Street
San Diego, CA 92120
2nd Mon., Fellowship Hall, Christ United
Methodist Church, 3295 Meade, 12 noon

SAN DIEGO EPIPHYLLUM SOCIETY

Pres: Mr. Ron Miller 746-9620
822 Via Rancho Parkway
Escondido, CA 92025
2nd Wed., Casa del Prado, 7:30 p.m.

SAN DIEGO FERN SOCIETY

Pres: Mr. Donald Callard 438-9409
7146 Argonauta Way
Carlsbad, CA 92008
3rd Thurs., Casa del Prado, 7:30 p.m.

SAN DIEGO FUCHSIA &

SHADE PLANT SOCIETY

Pres: Mr. Ron Berkert 465-7649
1142 Osage Drive
Spring Valley, CA 92077
2nd Mon., Casa del Prado, 7:30 p.m.

SAN DIEGO GERANIUM SOCIETY

Pres: Mr. George Plaisted 583-9551
6356 Delbarton Street
San Diego, CA 92120
2nd Tues., Casa del Prado, 7:30 p.m.

SAN DIEGO GESNERIAD SOCIETY

Pres: Mr. Mike Ludwig 574-1138
642 Torrance Street
San Diego, CA 92103
1st Thurs., Casa del Prado, 7:30 p.m.

SAN DIEGO-IMPERIAL COUNTIES

IRIS SOCIETY

Pres: Mr. Albert Feldman 747-6584
2050 Oakhill Drive
Escondido, CA 92027

SAN DIEGO ROSE SOCIETY

Pres: Ms. Patty Howell 436-3960
1045 Passiflora Ave.
Leucadia, CA 92024
3rd Mon., Casa del Prado, 7:30 p.m.

SAN DIEGUITO GARDEN CLUB

Pres: Mrs. Jan Netusil (Mary) 753-1044
912 Emma Drive
Cardiff, CA 92007
4th Wed., Ecke Family Bldg., Quail Gar.
Encinitas, 10 a.m.

SAN MIGUEL BRANCH

AMERICAN BEGONIA SOCIETY

Pres: Mr. Mike Ludwig 574-1138
642 Torrance Street
San Diego, CA 92103
1st Wed., Casa del Prado, Rm. 104
7:30 p.m.

SOGETSU SCHOOL OF IKEBANA

Pres: Mrs. Leroy Lahey 423-1571
2829 Flax Drive
San Diego, CA 92154

SOUTHWEST GROUP, JUDGES COUNCIL

Chr. Mrs. Edwin R. Gould 475-8996
2111 Rachael Avenue
San Diego, CA 92139
1st Wed., Casa del Prado, 10:00 a.m.

SOUTHWEST HEMEROCALLIS SOCIETY

Pres: Mr. C.R. Bowman 273-7937
3927 Sequoia Street
San Diego, CA 92109
1st Sat., Feb., Apr., Jun., Sep., Nov.
10 a.m. Quail Gardens Meeting Room
Quail Gardens Rd., Encinitas

VILLAGE GARDEN CLUB OF LA JOLLA

Pres: Mrs. Edward Sheldon 456-0506
656 Graviola Place
La Jolla, CA 92037
4th Thurs., La Jolla United Methodist
6063 La Jolla Blvd., La Jolla 1:00 p.m.

VISTA GARDEN CLUB

Pres: Rose Bradley 758-2435
1138 Anza Avenue, Vista, CA 92083
1st Fri. at 222 Jefferson St., Vista
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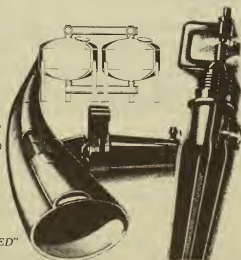
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HORTICULTURE CALENDAR

continued from inside front cover

MAY 31 & June 1

San Diego Cactus and Succulent Show. Casa del Prado, Room 101, Balboa Park, San Diego, CA. Sat. 1-5 p.m., Sun. 10-5 p.m. Plant sale and show.

June 5, 12, 19, 26

Thursday Workshop with Colleen Winchell. Free Floral craft instruction - open to public. San Diego Floral Association Library, Casa del Prado, Room 105, Balboa Park, San Diego, CA. Thurs. 10-3 p.m. 479-6433.

June 6-7

Apricot Festival, Patterson, CA. A town built in 1910 stakes its claim to fame as Apricot Capitol of the World. Parade, arts and crafts, BBQ. P.O. Box 442, Patterson, CA 95363. (209) 892-3118.

JUNE 7

Fuschia Bloom and Plant Show and Sale. Longs/Safeway Shopping Center, Oceanside Blvd. at Interstate 5. All plants grown by members.

JUNE 8

History Walk guided by Ranger/Naturalist Torrey Lystra at Wilderness Garden Preserves, Pala, CA Free. Parking fee \$1.00.

JUNE 8

Southwest Hemerocallis Society's 13th Annual Show. Casa del Prado, Room 101, Balboa Park, 12-5 p.m. Free.

JUNE 14 & 15

San Diego Fuchsia & Shade Plant Show. Casa del Prado, Room 101, Balboa Park, San Diego, CA. Sat. 12-5 p.m., Sun. 10-5 p.m. Free.

JUNE 14-16

Third Annual Fuchsia Lore Show. Descanso Gardens, 1418 Descanso Drive, La Canada/Flintridge, CA. 10-5 p.m. daily. Fuchsia arts, crafts, antiques and plants will be on show and sale.

*JUNE 17

San Diego Floral Association's 79th Annual Meeting "A Tribute to Kate Sessions". Covered dish Dinner and Installation of Officers, Casa del Prado, Room 101, Balboa Park 6:00 p.m. Reservations: 232-5762.

JUNE 19 - JULY 6

Del Mar Fair. Meet me at the fair! San Diego Floral Association will have a garden gazebo at the Del Mar Fair for the sale of CALIFORNIA GARDEN magazine. If you can help sell for half or all day please call 232-2661. Guaranteed: You will have a good time, you are needed, and you will meet interesting folks from all over.

June 23-29

International Palm Society's Biennial Meeting, Bahia Hotel, San Diego, CA. Daytime garden tours; Evening programs, speeches, slide shows. Info: (619) 755-2798.

*JUNE 27-29

Lompoc Flower Festival Trip sponsored by San Diego Floral Association. Includes grand parade, arts and crafts show, Alpha flower show and flower field tour (19 miles) and La Purisima Mission. Call Jerry Ray 232-2661 for reservation.

JUNE 27, 28, 29

Fuschia and Shade Plants and Fuschia Lore on display and for sale at Laguna Hills Mall Shopping Center, El Toro, CA at same hours as shopping center. Educational programs on growing and care of fuschias.

JUNE 28

Growing unusual fruits in southern California gardens course. Contact Patricia Healy, University of California Extension, 10995 Le Conte Ave., Rm. 414, Los Angeles, CA 90024. (213) 825-9414 ext. 1735.

JUNE 28 & 29

Ohara Chapter of San Diego Ikebana Show. Casa del Prado, Room 101, Balboa Park, 11-4:30 p.m. Free.

June 28 & 29

South Bay Bromeliad Associates presents 19th Annual All Bromeliad Show and Plant Sale at South Coast Botanic Garden, 26300 south Crenshaw Boulevard, Palos Verdes Peninsula, CA. Sat. noon-4:30 p.m.; Sun. 10-4:30 p.m. Sale 10-4:30 p.m. both days. Rare Plant Auction Sun. 2 p.m. Info: (213) 836-3177.

July 6

San Diego Dahlia society Specimen Show, Casa del Prado, Room 101, Balboa Park, San Diego. Sun 1-4:30 p.m. Free.

Deadline date for all Horticultural Events to be listed in July/August issue is May 20, 1986. submit to CALIFORNIA GARDEN, San Diego floral Association, Inc., Casa del Prado, Balboa Park, San Diego, CA 92101-1619.

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